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*Distribution of
Flax Varieties
in the Prairie Provinces
(1949 to 1961)*



Flax Varieties in Nursery at Indian Head

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DISTRIBUTION OF FLAX VARIETIES IN THE PRAIRIE PROVINCES (1949 - 1961)

F. J. GREANEY AND J. BARNES^{1/}

INTRODUCTION

Surveys to determine the extent to which different varieties of flax are grown in the Prairie Provinces have been conducted annually since 1949. The results for the thirteen-year period, 1949 to 1961, are presented in this circular.

TRENDS IN FLAX PRODUCTION

The acreage, average yield per acre, and total production of flax seed in Manitoba, Saskatchewan and Alberta for each of the thirteen years, 1949 to 1961, are shown in Table I.

It is clear from the figures in Table 1, that flax production in the Prairie Provinces is subject to considerable fluctuation. During the period under review it varied from 1,973,000 bushels in 1949 to an all-time record of 34,600,000 bushels which was produced on 3,010,000 acres in 1956. As the figures in Table I show, since 1957, the annual production of flax seed in the Prairie Provinces has continued at a relatively high level, averaging 19,106,000 bushels for the five years, 1957 to 1961.

In recent years flax has assumed considerable importance as a commercial small grain crop in the Prairie Provinces. It now occupies a much higher standing among field crops than formerly. The recent sustained interest of prairie farmers in the growing of flax can be attributed largely to the development and release of improved varieties; varieties more adaptable to special soil and climatic conditions; varieties which ripen earlier and possess more resistance to rust, wilt, and other diseases; and varieties of superior oil content and quality. As flax is a poor weed competitor, another factor that has played an important part in stabilizing flax production in the Prairie Provinces has been the introduction and effectiveness of modern chemical weed control methods. In brief, the improvements in varieties, cultural practices and weed control methods have made flax a much safer crop to grow in the Prairie Provinces.

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Table 1. Acreage and production of flaxseed in the Prairie Provinces, by provinces,
for the thirteen crop years 1949 to 1961*

Crop Year	MANITOBA			SASKATCHEWAN		
	Seeded acreage	Yield per acre	Total production	Seeded acreage	Yield per acre	Total production
	acres	bus.	000 bus.	acres	bus.	000 bus.
1949	110,000	8.2	1,148	122,000	4.9	600
1950	323,000	9.7	3,133	170,000	5.6	950
1951	655,000	7.1	4,650	296,000	7.8	2,300
1952	500,000	9.2	4,600	360,000	10.8	2,900
1953	420,000	9.0	3,800	324,000	10.2	3,300
1954	444,000	9.0	4,000	489,000	9.3	4,550
1955	531,000	8.3	4,400	1,030,000	11.0	11,300
1956	789,000	10.1	8,000	1,710,000	11.4	19,500
1957	865,000	4.0	3,500	2,025,000	5.2	10,500
1958	530,000	8.6	4,700	1,496,000	7.6	11,300
1959	575,000	8.0	4,600	975,000	6.5	6,300
1960	707,000	9.1	6,400	1,250,000	8.6	10,750
1961	748,000	5.7	4,300	941,000	6.0	5,600
PRAIRIE PROVINCES						
Crop Year	ALBERTA			PRAIRIE PROVINCES		
	Seeded acreage	Yield per acre	Total production	Seeded acreage	Yield per acre	Total production
	acres	bus.	000 bus.	acres	bus.	000 bus.
1949	28,000	8.0	225	290,000	6.8	1,973
1950	48,000	8.3	400	541,000	8.3	4,483
1951	135,000	11.1	1,500	1,086,000	7.8	8,450
1952	167,000	13.2	2,200	1,027,000	10.4	10,700
1953	164,000	12.2	2,000	908,000	10.0	9,100
1954	215,000	10.0	2,150	1,148,000	9.3	10,760
1955	248,000	12.1	3,000	1,809,000	10.3	18,700
1956	511,000	13.9	7,100	3,010,000	11.5	34,600
1957	572,000	8.6	4,900	3,462,000	5.5	18,900
1958	556,000	11.7	6,500	2,602,000	8.6	22,500
1959	580,000	11.4	6,600	2,130,000	8.2	17,500
1960	600,000	9.3	5,580	2,537,000	8.9	22,730
1961	382,000	11.0	4,000	2,051,000	6.8	13,900

* Estimates published by Dominion Bureau of Statistics, Ottawa, Handbook of Agricultural Statistics Part I — Field Crops 1908-1958, issued September, 1959, and other field crop production releases.

VARIETAL SURVEY METHODS

The annual flax varietal survey results herein reported were compiled from information obtained from some 1,800 country grain buyers in Manitoba, Saskatchewan and Alberta of Grain Companies associated with the Line Elevators Farm Service. In each survey year each grain buyer was asked to estimate the percentage of the total flax acreage in the district served by his elevator (shipping point) individual flax varieties occupied. The acreage estimates submitted by grain buyers were analyzed and compiled, by provinces. More detailed information on the methods used in variety surveys made by this Department will be found in Line Elevators Farm Service Circular No. 22, 1960.

DISTRIBUTION OF VARIETIES OF FLAX

The acreage of each variety of flax grown in Manitoba, Saskatchewan and Alberta in 1961, and the percentage of the acreage each variety occupied in each survey year are given in Tables 2, 3, 4 and 5. In these tables the varieties are arranged in order of importance for 1961, the last year of the surveys herein reported. To emphasize the marked changes that occurred in the varieties of flax grown in Manitoba, Saskatchewan and Alberta during the period 1949 to 1960, the survey data for some of the more prominent varieties are presented graphically in Figures 1 to 4. A brief description of the varietal survey results, by provinces, follows.

MANITOBA

The principal item of interest in Table 2 is the fact that a comparatively small number of varieties account for a very large proportion of the area devoted to flax in Manitoba. In 1958, 1959, 1960 and 1961, for instance, four varieties — Marine, Redwood, Raja and Sheyenne, accounted for approximately 90 per cent of the total provincial flax acreage.

In each of the survey years, 1954 to 1961, Marine was the most extensively grown variety in Manitoba. From 1956 to 1961 Redwood was second in importance. The acreage devoted to Redwood increased rapidly from 0.3 per cent in 1952 to 23.2 per cent in 1956. The status of this variety changed little from 1957 to 1961. Two years after its introduction, Raja had become the third most prominent Manitoba flax variety. By 1959 it occupied as much as 16.1 per cent of the total provincial flax acreage.

Table 2—Estimated percentage of the total flax acreage of Manitoba individual varieties occupied each year from 1949 to 1961, and the estimated acreage of each variety for 1961.

[illegible]

1/ The asterisk (*) indicates a variety reported as grown, but the estimate of acreage was less than 0.1 per cent of the total flax acreage of Manitoba.

2/ Includes all other varieties, the most of which occupied less than 0.1 per cent of the total flax acreage of Manitoba.

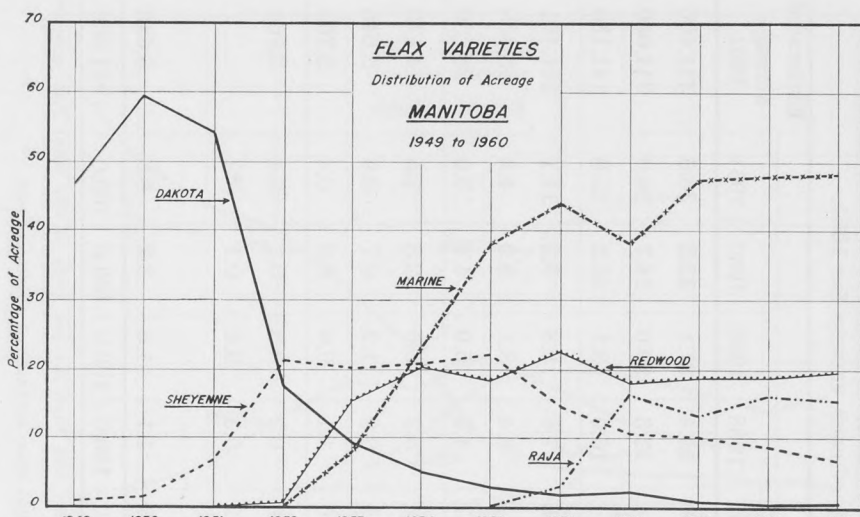


Figure 1. Graph showing changes in the popularity of the flax varieties Dakota, Sheyenne, Marine, Raja and Redwood in Manitoba during the twelve-year period, 1949 to 1960.

Dakota and Royal, the leading varieties in 1949 and 1950, declined steadily in acreage following the introduction of Sheyenne, Redwood and Marine. Although Royal and Dakota are high yielding varieties they are late maturing and possess little or no resistance to rust and certain other diseases. As might be expected, they were replaced by new improved, earlier maturing, rust-resistant varieties. In recent years, the popularity of the older flax varieties—Redwing, Victory and Viking declined rapidly in Manitoba. The varieties Rocket and Sheyenne also lost prominence after the introduction of the early maturing varieties Marine and Raja. Changes in the popularity of certain prominent varieties of flax grown in Manitoba during the 12-year period, 1949 to 1960, are indicated in Figure 1.

SASKATCHEWAN

The flax varietal survey data for Saskatchewan are given in Table 3 and Figure 2. They require little comment.

The results in Table 3 show that in each of the survey years a small number of varieties accounted for a large proportion of the acreage devoted to flax in Saskatchewan. For instance, two varieties—Royal and Dakota—occupied over 70 per cent of the provincial total in 1949, 1950 and 1951. From 1958 to 1961, three varieties—Redwood, Marine and Norland—accounted for at least 70 per cent of the total flax acreage of the province.

Royal was the most extensively grown flax variety in Saskatchewan from 1949 to 1954. Its acreage declined sharply and steadily after 1954. In 1949 it occupied 61.5 per cent of the total area devoted to flax in Saskatchewan, but by 1961 it accounted for only 1.5 per cent of the total.

Table 3—Estimated percentage of the total flax acreage of Saskatchewan individual varieties occupied each year from 1949 to 1961, and the estimated acreage of each variety for 1961.

Variety	Percentage of acreage ^{1/}												Estimated acreage 1961	
	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960		1961
Redwood	.....	.....	(*)	0.5	5.4	20.3	30.7	39.7	42.9	43.4	37.1	33.3	36.6	344,406
Norland	.....	.....	.....	.....	.....	.....	(*)	1.6	5.4	13.3	20.0	24.7	26.0	244,660
Marine	.....	.....	.....	(*)	2.8	9.4	16.9	19.1	18.4	16.0	13.1	15.2	15.0	141,150
Raja	.....	.....	.....	.....	.....	.....	0.1	1.3	7.3	7.6	8.8	9.2	11.1	104,451
Rocket	0.3	2.2	4.9	12.3	17.3	16.2	20.7	16.4	11.4	8.4	8.1	5.9	4.8	45,168
Redwing	8.8	9.2	6.0	6.7	6.4	7.1	6.3	6.5	4.7	4.5	5.9	4.4	3.0	28,230
Royal	61.5	49.7	42.6	39.7	30.9	21.8	9.2	4.9	3.9	3.2	2.6	2.3	1.5	14,115
Victory	6.3	6.4	7.1	9.6	8.8	5.4	4.3	2.3	1.9	0.9	1.2	0.7	0.6	5,646
Dakota	8.6	21.8	28.4	19.1	15.2	11.1	4.4	3.2	1.6	1.1	0.9	0.8	0.4	3,764
Sheyenne	0.7	1.0	1.6	6.1	7.6	4.0	2.6	1.4	0.6	0.2	0.3	0.2	0.4	3,764
Bison	3.4	1.9	2.3	3.3	2.2	2.6	1.3	1.2	0.2	0.3	0.4	0.1	(*)	.....
Viking	7.4	5.7	4.6	(*)	(*)	(*)	.....	.....	.....	.....	.....	.....	.....	.....
Others ^{2/}	3.0	2.1	2.5	2.7	3.4	2.1	3.5	2.4	1.7	1.1	1.6	3.2	0.6	5,646
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	941,000

1/ The asterisk (*) indicates a variety reported as grown, but the estimate of acreage was less than 0.1 per cent of the total flax acreage of Saskatchewan.

2/ Includes all other varieties, the most of which occupied less than 0.1 per cent of the total flax acreage of Saskatchewan.

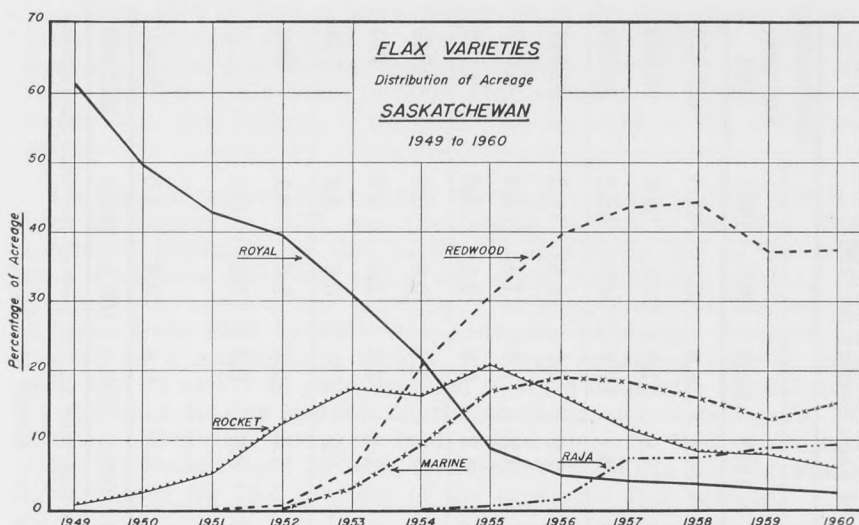


Figure 2. Graph showing changes in the popularity of the flax varieties Royal, Rocket, Marine, Raja and Redwood in Saskatchewan during the twelve-year period, 1949 to 1960.

In each of the survey years, 1955 to 1961, Redwood was the leading flax variety in Saskatchewan. Although it was not released until 1951 it had, by 1955, become the most widely-grown variety in the province. The acreage of Redwood reached its maximum in 1958, a year in which it accounted for 43.4 per cent of the Saskatchewan flax acreage. Owing mostly to the wide acceptance of Raja, which was first introduced in 1955, Redwood had dropped to 36.6 per cent by 1961.

Marine, a relatively new variety, ranked second in Saskatchewan in 1956, 1957 and 1958. This position, however, was held by Norland, a selection of the old variety Victory, in 1959, 1960 and 1961. Norland was released to farmers in 1955 and by 1961 it accounted for as much as 26.6 per cent of the provincial flax acreage.

Although the popularity of the old variety Redwing remained fairly constant during the eight-year period 1949 to 1956, it commenced to decline in popularity in 1957. As might be expected, the acreage of several old varieties including Bison and Victory, declined steadily in Saskatchewan after 1952. By 1961 they had been almost completely replaced by the new varieties Redwood, Marine, Raja and Norland.

ALBERTA

The actual acreage individual varieties of flax occupied in Alberta in 1961, and the proportion of the total provincial flax acreage each variety accounted for in each of the survey years, 1949 to 1961, are given in Table 4. Some of the major shifts in the flax variety picture that occurred in Alberta during the twelve years, 1949 to 1960, are indicated in Figure 3.

Table 4—Estimated percentage of the total flax acreage of Alberta individual varieties occupied each year from 1949 to 1961, and the estimated acreage of each variety for 1961.

Variety	Percentage of acreage ^{1/}												Estimated acreage 1961
	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
Redwood	.....	.....	(*)	0.3	3.7	15.2	25.7	35.2	44.2	44.4	36.8	35.9	32.5
Redwing	58.0	54.6	51.0	51.6	57.6	53.1	45.6	42.9	31.2	29.6	31.0	24.5	25.6
Raja	.....	.....	.....	.....	.....	.....	(*)	(*)	4.9	9.7	17.1	24.6	25.2
Marine	.....	.....	.....	(*)	0.2	6.8	11.4	9.2	6.9	7.8	8.1	8.9	11.2
Sheyenne	(*)	(*)	(*)	(*)	0.4	0.8	1.5	2.0	1.7	1.2	1.8	1.4	2.4
Dakota	0.3	1.5	8.7	11.6	14.2	7.8	5.8	2.9	2.5	1.3	0.9	0.3	0.6
Royal	24.1	20.2	22.4	23.5	16.1	8.9	5.5	2.3	2.0	1.2	0.3	0.9	0.5
Rocket	(*)	0.3	0.4	0.3	0.2	0.5	1.9	2.9	2.7	1.3	2.2	1.8	0.2
Norland	.....	.....	.....	.....	.....	.....	.....	(*)	(*)	0.2	(*)	0.8	0.2
Victory	1.2	0.9	0.7	1.9	1.1	1.3	0.6	1.2	2.0	1.8	0.7	0.2	0.1
Bison	12.9	21.9	12.9	10.0	5.7	3.6	1.6	1.0	0.6	0.9	0.3	0.1	(*)
Viking	1.1	0.3	0.3	(*)	(*)	.....	.....	.....	.....	.....	.....	.....	.....
Others ^{2/}	2.4	0.3	3.6	0.8	0.8	2.0	0.4	0.4	1.3	0.6	0.8	0.6	1.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
													362,000

1/ The asterisk (*) indicates a variety reported as grown, but the estimate of acreage was less than 0.1 per cent of the total flax acreage of Alberta.

2/ Includes all other varieties, the most of which occupied less than 0.1 per cent of the total flax acreage of Alberta.

From 1949 to 1961, a large proportion of the flax acreage of Alberta was devoted to three or four varieties. In 1949, for instance, Redwing, Royal and Bison accounted for 95 per cent of the provincial total. Thirteen years later, in 1961, four varieties — Redwing, Redwood, Raja and Marine — occupied 94.5 per cent of the total flax acreage.

During the period 1949 to 1956 Redwing, which was first distributed to farmers in 1932, was the leading variety in Alberta. The continued popularity of this variety is apparently due to the fact that it matures early and yields well under conditions prevailing in the northern areas of the province. The most prominent variety in Alberta from 1957 to 1961 was Redwood. Although Redwood is classed as a medium-late variety, its high resistance to rust and wilt, and its ability to yield well and to ripen uniformly recommended Redwood to flax growers in the southern and central areas of Alberta. Redwing, however, held second place in 1957, 1958 and 1959. It ranked third in 1960, and second in 1961, a year in which it accounted for 25.6 per cent of the provincial flax acreage.

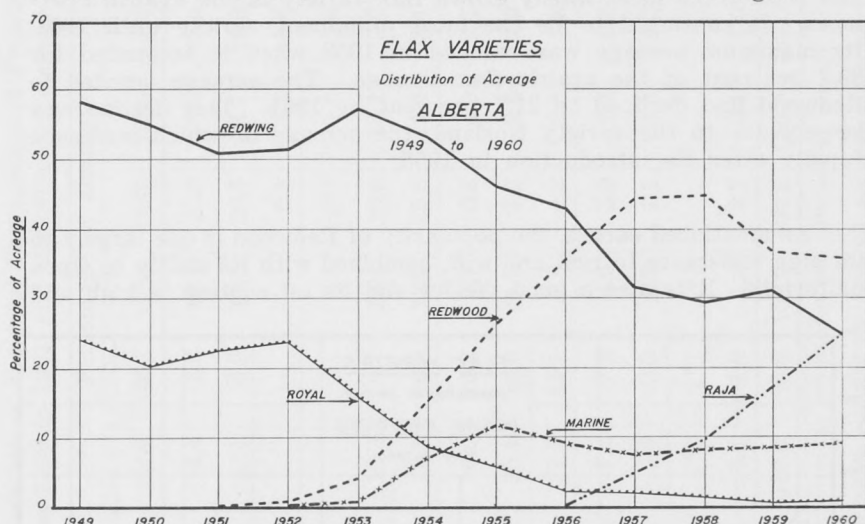


Figure 3. Graph showing changes in the popularity of the flax varieties Redwing, Royal, Marine, Raja and Redwood in Alberta during the twelve-year period, 1949 to 1960.

Raja, an early maturing variety, which was not distributed to farmers until 1954, had, by 1960, become the second most important flax variety in Alberta. On the other hand, Marine another early maturing disease-resistant variety, was never very widely grown in Alberta. Introduced in 1952 it reached its maximum acreage of 11.4 per cent in 1955. Although the area devoted to Marine declined to 6.9 per cent in 1957, its popularity increased each year from 1957 to 1961. By 1961 it still accounted for 11.2 per cent of the provincial total.

The acreage proportions of the older varieties — Royal, Dakota and Bison, declined to a marked degree after 1953 as a result of

significant increases in the acreage devoted to the newer improved varieties, particularly Redwood, Raja and Marine. The popularity of these newer varieties is due largely to their earliness and higher resistance to the more common diseases of flax, particularly rust and wilt, combined with their ability to produce high yields of seed which is high in oil content and excellent in quality.

PRAIRIE PROVINCES

The acreage of the major flax varieties grown in the Prairie Provinces in 1961, and the proportion each variety occupied in each survey year from 1949 to 1961, expressed as a percentage of the total flax acreage, are given in Table 5. Shifts in the popularity position of certain prominent flax varieties during the twelve-year period, 1949 to 1960, are indicated in Figure 4.

In 1954, three years after it was distributed to farmers, Redwood had become the most widely grown flax variety in the Prairie Provinces. It continued to be the most prominent variety until 1961. Its maximum acreage was reached in 1958 when it accounted for 39.4 per cent of the prairie flax acreage. The acreage devoted to Redwood had declined to 31.7 per cent by 1961. This decline was largely due to the variety Norland, the acreage of which increased rapidly after its introduction in 1955.

As mentioned earlier, the popularity of Redwood is due largely to its high resistance to rust and wilt, combined with its ability to ripen uniformly. It is also a good yielder and its oil content is high and

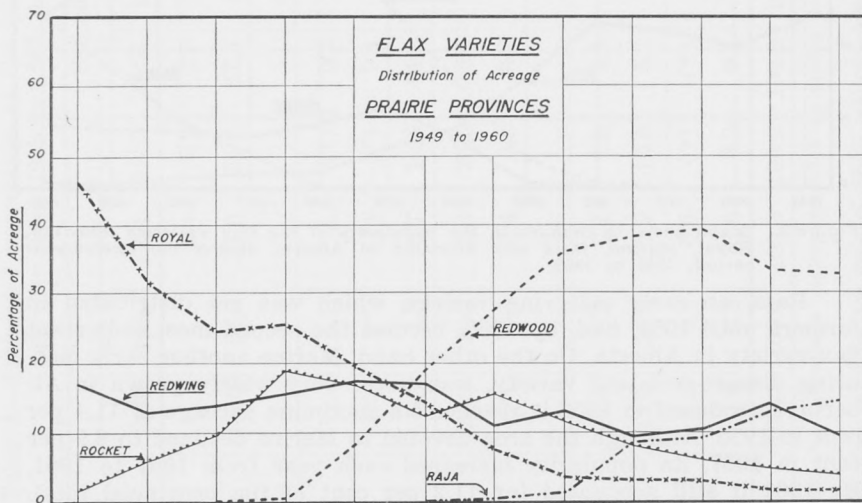


Figure 4. Graph showing changes in the popularity of the flax varieties Redwing, Royal, Rocket, Raja and Redwood in the Prairie Provinces during the twelve-year period, 1949 to 1960.

Table 5—Estimated percentage of the total flax acreage of Prairie Provinces individual varieties occupied each year from 1949 to 1961, and the estimated acreage of each variety for 1961.

Variety	Percentage of acreage ^{1/}												Estimated acreage 1961	
	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960		1961
Redwood	.....	.....	(*)	0.4	8.3	19.1	27.5	35.7	38.5	39.4	33.3	31.4	31.7	650,167
Marine	.....	.....	.....	(*)	3.9	12.3	20.5	21.7	19.8	19.3	18.4	19.6	22.7	465,577
Raja	.....	.....	.....	.....	.....	.....	0.1	1.3	8.4	9.1	13.2	14.5	15.8	324,058
Norland	.....	.....	.....	.....	.....	.....	(*)	1.0	3.8	8.2	9.2	14.2	13.4	274,834
Redwing	16.9	12.8	13.7	15.3	16.7	16.4	10.9	13.1	9.5	10.2	13.9	9.5	8.6	176,386
Rocket	1.3	5.4	9.8	19.1	16.9	12.6	15.6	11.4	8.1	5.5	4.4	3.9	2.8	57,428
Sheyenne	0.6	0.9	3.6	10.0	10.2	7.7	6.3	4.0	2.7	2.1	2.5	1.7	2.3	47,173
Royal	45.8	31.5	24.6	25.1	19.6	14.2	7.2	3.6	2.9	2.3	1.3	1.6	0.9	18,459
Dakota	20.0	37.3	35.8	17.0	13.1	8.8	4.2	2.8	1.9	1.0	0.8	0.6	0.5	10,255
Victory	4.8	4.5	5.1	7.4	7.2	4.9	3.9	2.3	2.3	1.4	1.1	0.7	0.4	8,204
Bison	4.1	3.3	3.3	3.6	2.3	2.2	1.1	1.0	0.2	0.4	0.3	0.1	(*)	.....
Viking	4.3	2.7	2.0	(*)	(*)	(*)	.....	.....	.....	.....	.....	.....	.....	.....
Others ^{2/}	2.2	1.6	2.1	2.1	1.8	1.8	2.7	2.1	1.9	1.1	1.6	2.2	0.9	18,459
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2,051,000

1/ The asterisk (*) indicates a variety reported as grown, but the estimate of acreage was less than 0.1 per cent of the total flax acreage of the Prairie Provinces.

2/ Includes all other varieties, the most of which occupied less than 0.1 per cent of the total flax acreage of the Prairie Provinces.

of good quality. Redwood was widely accepted by flax growers in the southern and central districts of each of the prairie provinces.

The second most important variety grown in the Prairie Provinces from 1955 to 1961 was Marine. This variety, first distributed to farmers in 1952, increased to maximum acreage in 1961 when it accounted for 22.7 per cent of the total. Through the period 1957 to 1961 the acreage devoted to Marine remained quite constant. Although the yield of this variety is generally somewhat below that of other prominent varieties, its earliness and its rust and wilt resistance are characteristics which have appealed to flax growers in the northern areas of Manitoba and Saskatchewan.

In 1949, two varieties, Royal and Dakota, accounted for 65.8 per cent of the flax acreage of the Prairie Provinces. Since then they have given way to superior varieties: varieties more resistant to disease; more uniform in maturing; and varieties of better oil quality for the most part. By 1961 Royal and Dakota had almost disappeared. Together that year they accounted for only 1.4 per cent of the total prairie flax acreage.

The once widely-grown varieties Victory and Bison are now of little importance in Western Canada. Because of its poor yielding ability, the variety Sheyenne, which was first distributed to farmers in 1947, was not widely accepted by prairie flax growers. The acreage it occupied never exceeded 10.2 per cent of the total area devoted to flax in the Prairie Provinces. Rocket is another variety which, for a few years after its introduction in 1947, gained rapidly in popularity. It reached its maximum acreage in 1952 when it accounted for 19.1 per cent of the prairie total after which its popularity declined steadily. For the Prairie Provinces as a whole, the acreage devoted to Redwing, an exceedingly popular variety in Alberta, remained fairly constant during the thirteen years, 1949 to 1961, ranging from a high of 16.9 per cent in 1949 to a low of 8.6 per cent in 1961.

In the Prairie Provinces there has been, in recent years, a continual change in the importance and distribution of flax varieties. Old varieties have been rapidly replaced by new ones which possess superior agronomic and quality characteristics. The newer flax varieties, such as Redwood, Marine, Raja and Norland, were readily accepted by farmers. These varieties are early, or medium early in maturity, highly resistant to rust and wilt and produce seed of high oil content of good quality. They owe their rapid acceptance and wide popularity to these factors as they meet the current needs of prairie flax growers and of the market. The value of the flax varietal surveys reported in this circular lies in the fact that they not only indicate the suitability of varieties for certain districts, but serve as a basis for further flax improvement.

ACKNOWLEDGEMENTS

The writers wish to acknowledge with thanks the valuable assistance of all country grain buyers of the Line Elevator Companies, sponsors of the Line Elevators Farm Service, in providing the basic information of the flax varietal surveys herein reported. Without their interest, co-operation and help this record of the distribution of flax varieties in the Prairie Provinces would not have been possible.

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